



Advanced Materials and Processes

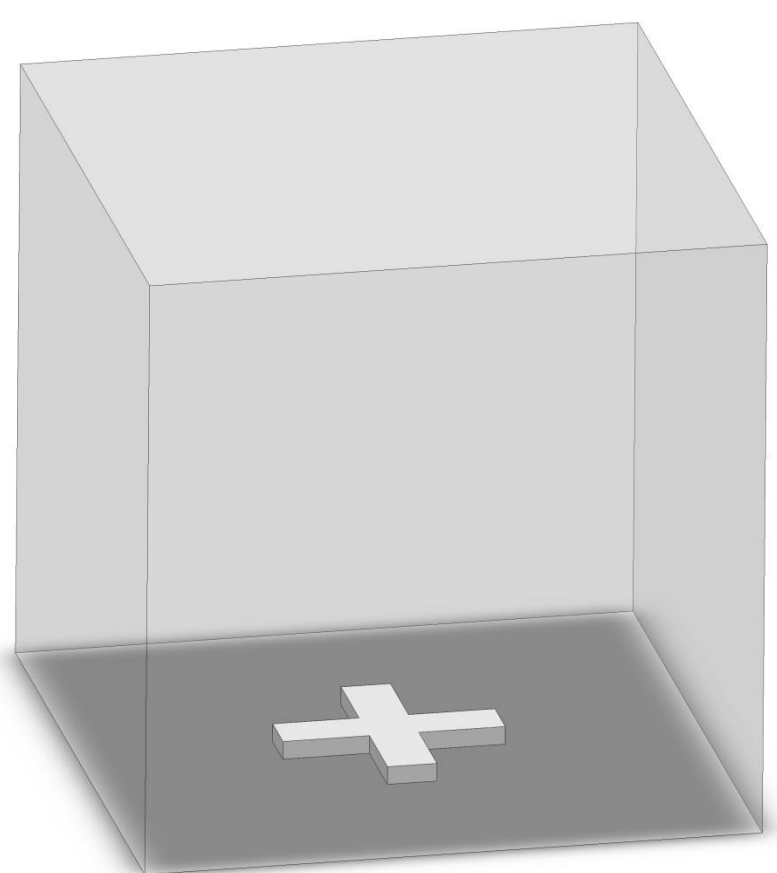
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Rapid Proto-Type Pressure Cases

CAMTAG



COMPRESSION TEST COUPON



CAMTAG

After Test



ANALYTICAL CALCULATIONS

Thick Wall Yield Comparison

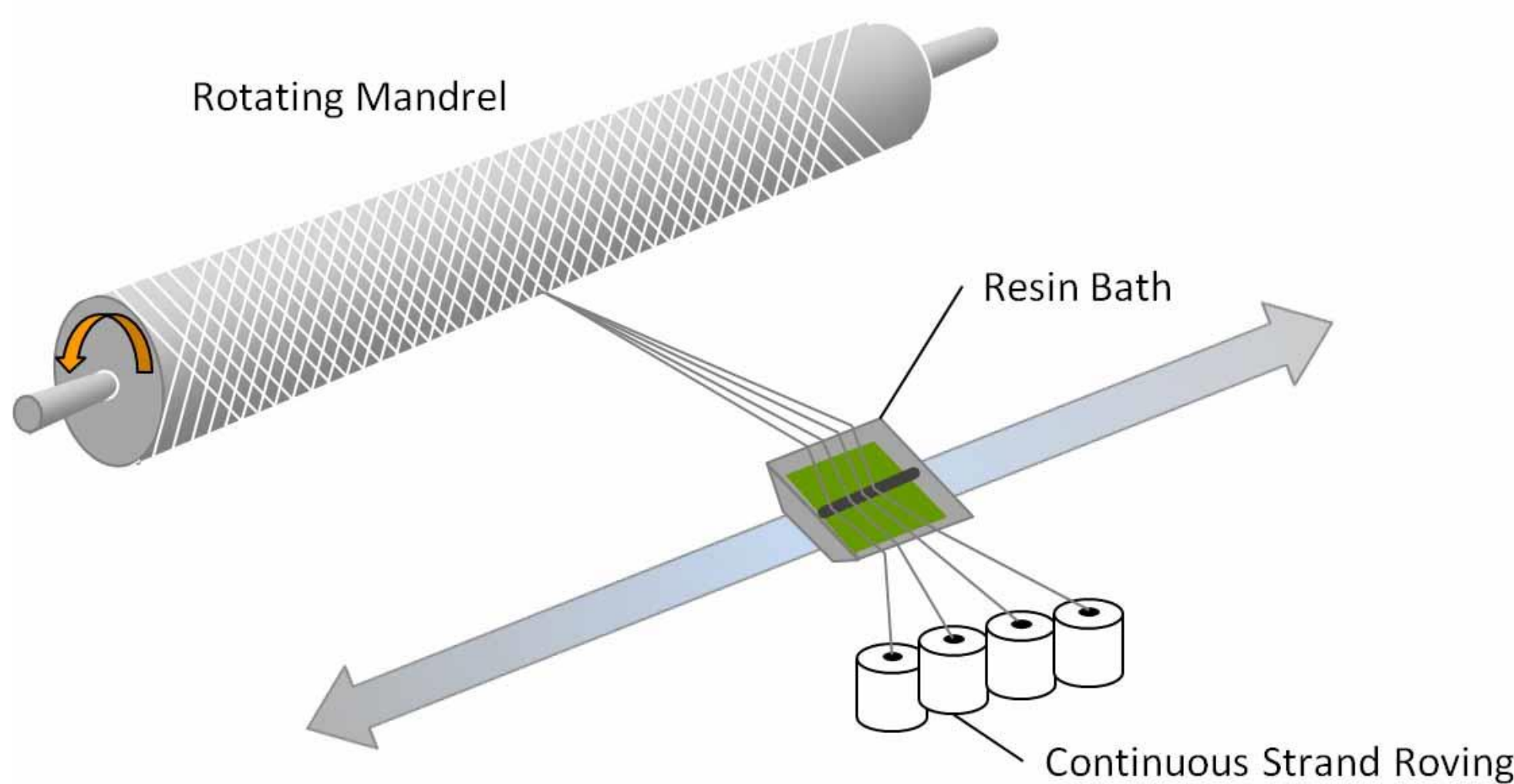
Test Pressure	Poisson	Young's Modulus (E)	VonMises Stress (psi)
3350 psi.	.35 ?	2.122 E5	10,420
1967 psi.	.35 ?	2.122 E5	6,120

"DOGBONE" TENSILE TEST COUPON



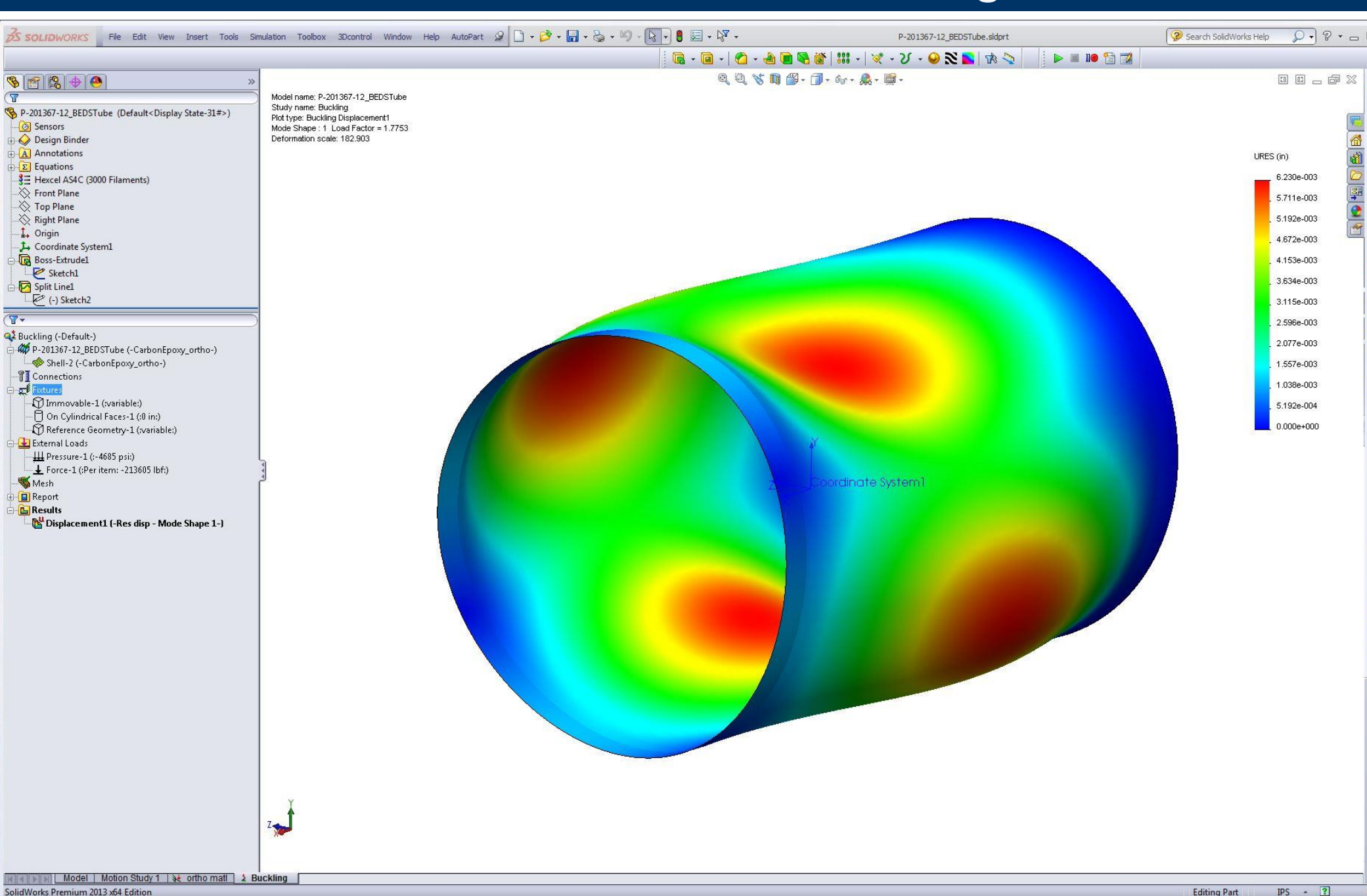
Filament Winding Tubes

Filament Winding

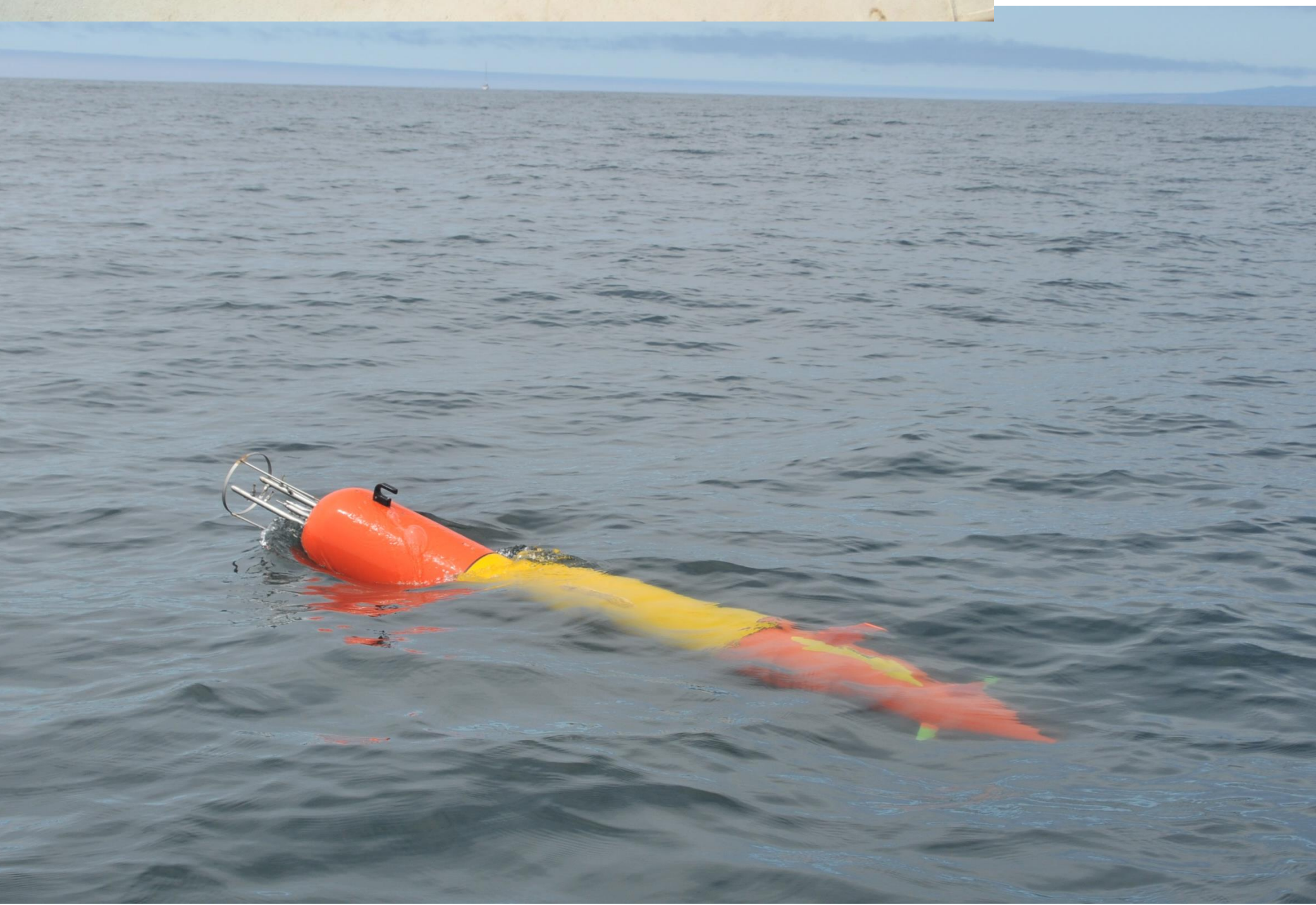


SOLIDWORKS SIMULATION BUCKLING SOLN.

BEDS Case 9.75 inch Long



NPS Turbulence Package



BEDS Press. Case



ANALYTICAL CALCULATIONS

Buckling Comparison

Tube	Lobes	SW Pressure	Comp Pro Pressure	NASA SP-8007
Test10_7x7	3	9527	9679*	9433*
BEDS10_7x9.75	2	8317	6247*	6179*
Test10_7x21	2	4464	4173*	4619*

- First Ply Failure is still 4343 psi. !!
- *Per not "Knock Down" Factor i.e. 75%

Mini ROV Electronics Case

.204 inch displacement

